

TABLES TO § 393.108
[Working Load Limits (WLL), Chain]

Size mm (inches)	WLL in kg (pounds)				
	Grade 30 proof coil	Grade 43 high test	Grade 70 transport	Grade 80 alloy	Grade 100 alloy
1. 7 (1/4)	580 (1,300)	1,180 (2,600)	1,430 (3,150)	1,570 (3,500)	1,950 (4,300)
2. 8 (5/16)	860 (1,900)	1,770 (3,900)	2,130 (4,700)	2,000 (4,500)	2,600 (5,700)
3. 10 (3/8)	1,200 (2,650)	2,450 (5,400)	2,990 (6,600)	3,200 (7,100)	4,000 (8,800)
4. 11 (7/16)	1,680 (3,700)	3,270 (7,200)	3,970 (8,750)		
5. 13 (1/2)	2,030 (4,500)	4,170 (9,200)	5,130 (11,300)	5,400 (12,000)	6,800 (15,000)
6. 16 (5/8)	3,130 (6,900)	5,910 (13,000)	7,170 (15,800)	8,200 (18,100)	10,300 (22,600)
Chain Mark Examples:					
Example 1	3	4	7	8	10
Example 2	30	43	70	80	100
Example 3	300	430	700	800	1000

SYNTHETIC WEBBING

Width mm (inches)	WLL kg (pounds)
45 (1 3/4)	790 (1,750)
50 (2)	910 (2,000)
75 (3)	1,360 (3,000)
100 (4)	1,810 (4,000)

WIRE ROPE (6 × 37, FIBER CORE)

Diameter mm (inches)	WLL kg (pounds)
7 (1/4)	640 (1,400)
8 (5/16)	950 (2,100)
10 (3/8)	1,360 (3,000)
11 (7/16)	1,860 (4,100)
13 (1/2)	2,400 (5,300)
16 (5/8)	3,770 (8,300)
20 (3/4)	4,940 (10,900)
22 (7/8)	7,300 (16,100)
25 (1)	9,480 (20,900)

MANILA ROPE

Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	90 (205)
11 (7/16)	120 (265)
13 (1/2)	150 (315)
16 (5/8)	210 (465)
20 (3/4)	290 (640)
25 (1)	480 (1,050)

POLYPROPYLENE FIBER ROPE WLL (3-STRAND AND 8-STRAND CONSTRUCTIONS)

Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	180 (400)
11 (7/16)	240 (525)
13 (1/2)	280 (625)
16 (5/8)	420 (925)
20 (3/4)	580 (1,275)
25 (1)	950 (2,100)

POLYESTER FIBER ROPE WLL (3-STRAND AND 8-STRAND CONSTRUCTIONS)

Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	250 (555)
11 (7/16)	340 (750)

POLYESTER FIBER ROPE WLL (3-STRAND AND 8-STRAND CONSTRUCTIONS)—Continued

Diameter mm (inches)	WLL kg (pounds)
13 (1/2)	440 (960)
16 (5/8)	680 (1,500)
20 (3/4)	850 (1,880)
25 (1)	1,500 (3,300)

NYLON ROPE

Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	130 (278)
11 (7/16)	190 (410)
13 (1/2)	240 (525)
16 (5/8)	420 (935)
20 (3/4)	640 (1,420)
25 (1)	1,140 (2,520)

DOUBLE BRAIDED NYLON ROPE

Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	150 (336)
11 (7/16)	230 (502)
13 (1/2)	300 (655)
16 (5/8)	510 (1,130)
20 (3/4)	830 (1,840)
25 (1)	1,470 (3,250)

STEEL STRAPPING

Width × thickness mm (inches)	WLL kg (pounds)
31.7 × .74 (1 1/4 × 0.029)	540 (1,190)
31.7 × .79 (1 1/4 × 0.031)	540 (1,190)
31.7 × .89 (1 1/4 × 0.035)	540 (1,190)
31.7 × 1.12 (1 1/4 × 0.044)	770 (1,690)
31.7 × 1.27 (1 1/4 × 0.05)	770 (1,690)
31.7 × 1.5 (1 1/4 × 0.057)	870 (1,925)
50.8 × 1.12 (2 × 0.044)	1,200 (2,650)
50.8 × 1.27 (2 × 0.05)	1,200 (2,650)

§ 393.110 What else do I have to do to determine the minimum number of tie-downs?

(a) When tie-downs are used as part of a cargo securement system, the minimum number of tie-downs required to

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secure an article or group of articles against movement depends on the length of the article(s) being secured, and the requirements of paragraphs (b) and (c) of this section. These requirements are in addition to the rules under § 393.106.

(b) When an article is not blocked or positioned to prevent movement in the forward direction by a headerboard, bulkhead, other cargo that is positioned to prevent movement, or other appropriate blocking devices, it must be secured by at least:

(1) One tiedown for articles 5 feet (1.52 meters) or less in length, and 1,100 pounds (500 kg) or less in weight;

(2) Two tiedowns if the article is:

(i) 5 feet (1.52 meters) or less in length and more than 1,100 pounds (500 kg) in weight; or

(ii) Longer than 5 feet (1.52 meters) but less than or equal to 10 feet (3.04 meters) in length, irrespective of the weight.

(3) Two tiedowns if the article is longer than 10 feet (3.04 meters), and one additional tiedown for every 10 feet (3.04 meters) of article length, or fraction thereof, beyond the first 10 feet (3.04 meters) of length.

(c) If an individual article is blocked, braced, or immobilized to prevent movement in the forward direction by a headerboard, bulkhead, other articles which are adequately secured or by an appropriate blocking or immobilization method, it must be secured by at least one tiedown for every 3.04 meters (10 feet) of article length, or fraction thereof.

(d) *Special rule for special purpose vehicles.* The rules in this section do not apply to a vehicle transporting one or more articles of cargo such as, but not limited to, machinery or fabricated structural items (e.g., steel or concrete beams, crane booms, girders, and trusses, etc.) which, because of their design, size, shape, or weight, must be fastened by special methods. However, any article of cargo carried on that vehicle must be securely and adequately fastened to the vehicle.

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§ 393.112 Must a tiedown be adjustable?

Each tiedown, or its associated connectors, or its attachment mechanisms must be designed, constructed, and maintained so the driver of an in-transit commercial motor vehicle can tighten them. However, this requirement does not apply to the use of steel strapping.

§ 393.114 What are the requirements for front end structures used as part of a cargo securement system?

(a) *Applicability.* The rules in this section are applicable to commercial motor vehicles transporting articles of cargo that are in contact with the front end structure of the vehicle. The front end structure on these cargo-carrying vehicles must meet the performance requirements of this section.

(b) *Height and width.* (1) The front end structure must extend either to a height of 4 feet above the floor of the vehicle or to a height at which it blocks forward movement of any item or article of cargo being carried on the vehicle, whichever is lower.

(2) The front end structure must have a width which is at least equal to the width of the vehicle or which blocks forward movement of any article of cargo being transported on the vehicle, whichever is narrower.

(c) *Strength.* The front end structure must be capable of withstanding the following horizontal forward static load:

(1) For a front end structure less than 6 feet in height, a horizontal forward static load equal to one-half (0.5) of the weight of the articles of cargo being transported on the vehicle uniformly distributed over the entire portion of the front end structure that is within 4 feet above the vehicle's floor or that is at or below a height above the vehicle's floor at which it blocks forward movement of any article of the vehicle's cargo, whichever is less; or

(2) For a front end structure 6 feet in height or higher, a horizontal forward static load equal to four-tenths (0.4) of the weight of the articles of cargo being transported on the vehicle uniformly distributed over the entire front end structure.